

## CLIMATOLOGICAL DATA FOR AUGUST, 1911.

## DISTRICT No. 3, OHIO VALLEY.

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## GENERAL SUMMARY.

The most noteworthy features of the weather conditions over the Ohio Valley during August, 1911, were: First, the oppressively warm weather prevailing during the greater portion of the first and second decades, and especially the intense heat and record-breaking high temperatures of the 10th and 11th; second, the unusually cool weather largely prevailing after the 17th, especially the remarkably low temperatures of the 19th-21st and the 29th-30th; third, the generally heavy rains of the last week, especially over the upper half of the Ohio River watershed.

The month began with cool, showery weather over much of the district, the rains being sufficient during the first few days to bring relief in many localities from the fearful drought prevailing for so long a period. The rains decreased and the temperature increased, however, after the 3d, until on the 10th and 11th rains had ceased and the temperature on those two days reached 100° and over in a majority of the States in the district. August records for heat were broken in several States, and in two, Indiana and Kentucky, new State records for August high temperatures were created. Following the 11th, while the weather continued oppressively warm until the 18th, the temperature was not so high and daily showers were again somewhat frequent, although the aggregate rainfall was mostly small. Clear and unseasonably cool weather during the 19th-22d was followed by general rains lasting practically from the 23d until the end of the month, the temperature for the most part being below normal during the same period. These general rains were timely and greatly beneficial, reviving pastures, thoroughly soaking the soil which had become dry and parched, and saving late crops from almost utter failure in many localities, besides replenishing the rapidly failing water supply.

Thunderstorms were frequent, but not more so than is usual in August. They were attended in some localities by damaging wind squalls, hail, and excessive rainfall. In the main, however, damage was local and of minor importance.

## TEMPERATURE.

The temperature for the month, as a whole, averaged above normal over the eastern and most of the central portions of the district, the greatest excess, +3° to +5°, occurring in the Appalachian sections of the district. It was below normal -1° to -2° at most stations in the extreme western portions of the district and in west central Kentucky.

The cool weather prevailing during the latter part of July continued during the first two or three days of August, except in the more easterly portion, where a warm wave had already set in on the last day of July.

This warm wave had extended to nearly all the district by the 4th of the month and to the whole district by the end of the first week. It continued until the 17th, and during the time that it prevailed maximum temperatures of 90° and over were registered almost daily in all portions of the district, except at the more elevated stations in southwestern Virginia and western North Carolina, and even in those favored sections the temperature registered unusually high. The mean daily temperatures ranged from 2° to 11° above normal. Fortunately, however, local thunderstorms were of rather frequent occurrence during much of this period, which gave temporary relief to the oppressive heat in various localities.

Immediately following the breaking up of this remarkable hot spell, brought about by the movement eastward of a strong area of high pressure across the Lake Region about the 18th to 20th, cool weather set in and practically continued during the rest of the month. Light frosts occurred at several stations in the mountain sections, and also in one or two of the more northerly States of the district, on several dates. It was quite warm, however, on the 27th, when the mean temperatures ranged from 4° to 10° above normal. Also, the cool weather did not extend over so long a period in the more easterly sections of the district—that is, in West Virginia, southwestern Virginia, western North Carolina, and the eastern portion of Tennessee—where from the 24th to the 28th, inclusive, the mean temperature was above normal. The periods 19th-21st and 29th-31st were remarkably cool. On the mornings of the 20th and 21st minimum temperatures in the 40s were registered in all the States of the district, except the northern portions of Georgia and Alabama; 39° was registered in Ohio and 37° in the western portions of New York, Pennsylvania, and Maryland. While unseasonably low temperatures were again experienced in the period 29th-31st, they were not as low as during the previous cool wave, except in Illinois and Indiana, where the lowest temperature of the month was registered on the 30th—42° in Indiana and 46° in Illinois. The leading temperature condition of the month was the intense heat which obtained on the 10th and 11th, when maximum temperatures of 100° and over were registered at a large number of stations in a majority of the States composing the district. A maximum temperature of 107° was registered at Rome, Ind., on the 10th, which is not only the highest temperature on record for August in Indiana, but is probably the record-high temperature for August for the entire Ohio Valley. At Bardstown, Ky., the temperature on the 11th reached 106°, 1° higher than any previous record in that State. It reached 105°, the previous high record for August, at several Kentucky stations on both the 10th and 11th. August high temperature local records were equaled or broken at many

stations in Kentucky, Indiana, Ohio, and West Virginia. A maximum temperature of  $105^{\circ}$  was reached in West Virginia,  $104^{\circ}$  in Ohio,  $103^{\circ}$  in Tennessee, and  $102^{\circ}$  Pennsylvania, Maryland, and Illinois.

The heat of this period was particularly oppressive in the States of Kentucky, Indiana, Ohio, and West Virginia. There were a number of prostrations, several resulting fatally, in those States. Probably the most remarkable temperature record of the month at any individual station was that at Deer Park, Md., elevation 2,457 feet, where it registered  $102^{\circ}$  on the 10th, and 10 days later a minimum of  $37^{\circ}$  was registered.

An unusually large range in temperature occurred during the month in nearly all the States in the district. This range amounted to  $65^{\circ}$  in the western portions of Pennsylvania and Maryland and in Ohio, while the range for the district was  $70^{\circ}$ .

#### PRECIPITATION.

The monthly precipitation was much above normal over the northeastern quarter of the district, an area comprising the western portions of New York, Pennsylvania, and Maryland and the greater portion of Ohio and West Virginia. It was also considerably above normal in the western portions of Virginia and North Carolina, in northwestern Alabama, western Tennessee, and over much of Kentucky. It was below normal in Indiana and Illinois, except in the extreme southern portions of those States, over extreme eastern Kentucky, eastern Tennessee, and the sections of Virginia and North Carolina immediately bordering on those States. It was also below normal over an area, about 100 miles in width, extending from north central Tennessee northward across the blue-grass region of Kentucky to central Ohio.

Over practically all of the Ohio River drainage area above the Big Sandy on the south and the Scioto on the north the rainfall of the month totaled between 5 and 12 inches. Over the Cheat and Monongahela Basins of West Virginia and southwestern Pennsylvania, where the rainfall was greatest, there were between 8 and 12 inches. The largest rainfall of the month, however, in the entire district occurred on the headwaters of the Tennessee River, in southwestern North Carolina, where 13.3 inches were received at two stations of high elevation, both located in Macon County, N. C. Six to eight inches were received at several other stations in North Carolina and at several stations in the Great Kanawha Basin of southwestern Virginia, also at a few stations in the Tennessee Basin of northwestern Alabama and western Tennessee. The lightest rainfall in the district was in the Wabash Basin of Illinois and Indiana. Over all this section the amount was less than 3 inches, over much of it less than 2 inches, and at a few stations less than 1 inch. The smallest amount was 0.72 inch at Farmersburg, Ind. At several stations in central Kentucky the amount of rain was less than 3 inches. Over all of the district other than those sections mentioned the monthly rainfall was, with a few local exceptions, between 3 and 6 inches.

Showers occurred more or less generally over the district during the first eight or nine days. They were more general and the rainfall more satisfying, however, during the first three or four days. Scattered showers, with an occasional heavy local rain, occurred in the period 12th-18th. During the last week rains were general and heavy in Kentucky and Ohio and eastward to the Atlantic coast. They were also, during this period, more or less

general and heavy at times in North Carolina and southwestern Virginia, and frequent, with an occasional heavy rainfall, in other portions of the district. Excessively heavy rains occurred during the last seven or eight days of the month over large areas of the upper Ohio Basin. From west central West Virginia northeastward over Pennsylvania and Maryland, covering the greater portion of the Little Kanawha Basin and the southern tributaries of the Monongahela, the rainfall during the rain-storm of the 28th-31st alone exceeded 5 inches.

Excessive 24-hour precipitation occurred at quite a few stations in Ohio, Pennsylvania, and West Virginia in the period 28th-30th. At a number of stations in these States, 24-hour amounts ranged between 2.50 and 4.37 inches, the latter amount being measured at Ryan, Roane County, W. Va., on the 30th. During the 29th-30th excessive rains also fell in North Carolina, 24-hour amounts ranging between 2.80 and 4.77 inches being measured at several stations. The latter amount was received at Rock House, N. C. Besides these excessive 24-hour amounts, 3.04 inches fell at a station on the Wabash River in Illinois on the 5th, 3.33 inches at Rome, Ind. on the 28th, and 2.67 inches fell in 50 minutes at Asheville, N. C., on the 12th.

In western Maryland the rainfall was the heaviest ever received in August, and averaged more than 7 inches above normal. At many stations in West Virginia the excess in rainfall ran from 4 to nearly 8 inches, while at many stations in Ohio it was from 2 to 4.5 inches. In both of these States the monthly rainfall was greater than in any other August in the last quarter of a century.

These general and heavy rains were not destructive, however, but in the main were productive of general good. Coming as they did after so long a droughty condition, they thoroughly soaked the soil and replenished the much-depleted water supply, the water in the rivers and streams and wells and springs having become very low. These rains not only completely broke the prolonged drought, but gave good boating stages in the navigable rivers and high water in most of the smaller streams, particularly those in the upper half of the Ohio River watershed.

#### MISCELLANEOUS.

*August 3 and 4.*—A series of heavy thunderstorms occurred in the southern half of Pennsylvania, and lightning and wind did considerable damage. Near Uniontown, Pa., 20 persons were shocked when lightning struck a large tent sheltering about 200 people, and at Butler, Pa., 4 houses and 2 barns were struck and badly damaged, 3 persons receiving severe shocks, and 1 horse and 3 cows being killed.

*August 8.*—Two cows were killed by lightning on the farm of Moses Fry at Lewisburg, W. Va. Several dwellings were struck by lightning and 2 barns burned from this cause in the eastern portion of Ballard County, Ky. A wind, rain, and hailstorm did considerable damage in Graves County, Ky., and 5 horses were killed by lightning near Mayfield, Ky.

*August 12.*—The residence of George D. Todd, on the Knobs, 4 miles north of New Albany, Ind., was struck by lightning and destroyed, involving a loss of \$30,000.

*August 14.*—At Rogersville, Tenn., 2 persons were killed and 8 others seriously injured when lightning struck a church in which they had taken refuge.

*August 17.*—In Muskingum County, Ohio, 7 barns were struck by lightning and destroyed, causing a loss of about \$15,000. A severe hailstorm destroyed much tobacco,

corn, and fruit in the northeastern part of Butler County, Ohio. The path of the storm was about 1 mile wide and 15 miles long, and the tobacco crop in this area was reported to be practically destroyed. At Columbus the wind reached a velocity of 60 miles per hour from the west, equaling the highest August record at that station. Only slight damage was done in that vicinity, but near Gratiot, Ohio, about 50 shade trees were blown down and corn was badly damaged. Six hogs were killed on the farm of W. H. Botts, near Bagdad, Ky., and William Brewer, a farm hand, was injured. A mule was killed by lightning on the farm of William Wilhoite, near Newburg, Ky.

*August 18.*—At Columbia, Tenn., 5 head of colts on the Little Bigby stock farm were struck by lightning and killed. They were valued at \$200 each. A mule was also killed by lightning at the same time.

*August 19.*—At Rogersville, Tenn., 1 man was killed by lightning and several others severely shocked.

*August 20.*—At Golconda, Ill., a poultry house was struck by lightning and destroyed with a loss of \$2,000.

*August 27.*—A severe storm did great damage in and around Cattaraugus, N. Y. Much damage was caused by the overflow of streams in Cattaraugus County, N. Y. Humphrey and Great Valley Creeks were swollen into destructive torrents. Several persons lost their lives in these streams and extensive damage was done by inundation of the adjacent lowlands.

*August 28.*—Seven head of horses and mules were killed by lightning at Pulaski, Tenn., with a loss of over \$1,000.

*Rivers and streams.*—Rivers and streams over all the district were at very low stages until affected by the heavy rains near the end of the month. The Kentucky River was as low if not lower than it had been in 25 years, and many streams in the blue grass section of Kentucky had practically dried up, not even affording enough water for stock. The same may be said of other southern as well as the northern tributaries of the Ohio River. The Wabash at many places reached a lower stage than ever recorded before. The Cumberland and Tennessee Rivers were at a very low stage throughout the month. Navigation was suspended over the greater por-

tion of these rivers nearly all the month. The heavy rains near the close of the month caused good stages of water in all the upper tributaries and the upper reaches of the Ohio River, and fair stages for the season in many of the central tributaries.

*Note.*—A cooperative station of the climatological service was established during the month at Mountain Lake, Giles County, Va. The elevation of this station is 4,348 feet above sea level, and is the highest climatological station east of the Rocky Mountain slope.

#### ENGINEERING NOTES.

In the extreme southwestern corner of Indiana, in the county of Posey, there is a considerable body of water known as Hoveys Lake. The lake covers about 1,000 acres of land and is really a chain of lakes with an outlet to the Ohio River. It has been rather noted for years as a fishing and hunting resort. About two years ago the owners of this lake began building a concrete dam across the mouth of its outlet, with the purpose in view of eventually transforming the land now occupied by the lake into tillable soil and farm land. The belief is that when the periodical overflows from the Ohio River come, the dam will prevent the water running out of the lake when the flood recedes and thus the heavy sediment contained in the flood waters will settle in the lake, and gradually as inundation comes and goes the lake will become filled and the land reclaimed. The experiment is attracting much attention.

Steps have been taken to organize a drainage district to protect and drain the bottom lands along the Ohio River and Harris Fork, mostly in Obion County, Tenn. Harris Fork is a small but troublesome stream which crosses the State line at Fulton, Ky. Floods in Harris Fork have been quite annoying and costly to the citizens of Fulton, a single overflow having been known to cause from \$3,000 to \$5,000 of damage in that town, and such inundations are somewhat frequent. By a comparatively small expenditure these inundations can be prevented and also considerable valuable bottom lands saved from flooding.



TABLE 1.—Climatological data for August, 1911. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.					Precipitation, in inches.			Number of rainy days 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.						
<b>Ohio—Continued.</b>																				
Circleville...	Pickaway...	694	23	74.2	+ 0.9	100	10	51	20	38	4.70	+ 1.56	1.00	0	16	14	5	nw.		
Clarington...	Monroe...	600	8	73.7	-	100	10	46	21	44	6.84	-	1.75	0	12	10	11	sw.		
Columbus...	Franklin...	918	33	73.9	+ 0.9	98	10	51	30	31	3.62	+ 0.40	1.46	0	11	10	12	sw.		
Coshocton...	Coshocton...	770	2										1.60	-	17			Mrs. Ada Jeffries.		
Dayton...	Montgomery...	839		73.8	-	98	10	48	30	30	3.25	-	1.05	0	12	11	12	sw.		
Do...	do...	790	30	74.4	+ 0.8	101	10	49	20	39	3.58	+ 0.50	1.03	0	12	11	6	sw.		
Delaware...	Delaware...	927	14	73.4	+ 1.7	100	10	46	20	40	4.22	+ 0.95	0.97	0	14	18	7	nw.		
Demos...	Belmont...	1,325	23	73.8	+ 2.5	102	10	48	20	34	6.84	+ 3.12	1.79	0	14	18	6	s.		
Dennison...	Tuscarawas...	846	1	74.2	-	101	10	44	21	44	5.80	-	1.96	0	12	10	13	sw.		
Frankfort...	Ross...	750	19	75.7	+ 3.1	99	10	48	20	41	4.99	+ 1.77	1.50	0	8	15	8	sw.		
Garrettsville...	Portage...	1,005	27	69.3	+ 2.3	95	10	39	20	44	6.38	+ 2.90	1.24	0	13	6	21	sw.		
Granville...	Licking...	960	29	73.0	+ 2.0	100	10	45	20	41	5.27	+ 2.46	1.21	0	15	13	18	sw.		
Gratiot...	do...	1,000	22	71.8	+ 1.0	93	10	47	21	34	6.99	+ 3.81	1.50	0	13	11	13	w.		
Green...	Adams...	500	18	75.2	+ 0.5	103	10	48	25	42	5.88	+ 2.44	2.75	0	5	16	10	w.		
Green Hill...	Columbiana...	1,135	17	69.6	+ 0.9	93	10	39	20	41	5.83	+ 2.53	1.33	0	12	9	13	sw.		
Greenville...	Darke...	1,060	25	72.2	+ 1.3	97	10	50	29	30	4.29	+ 0.98	0.72	0	15	15	8	s.		
Haydenville...	Hocking...	700		73.3	-	97	10	42	21	43	3.92	-	1.26	0	10	18	6	sw.		
Hillsboro...	Highland...	1,063	32	74.4	0.0	100	10	50	21	37	5.41	+ 2.16	2.16	0	11	6	17	sw.		
Ironton...	Lawrence...	575	28	77.0	+ 3.7	102	11	49	21	43	3.84	-	0.10	0	12	13	12	sw.		
Jacksonburg...	Butler...	975	43	73.8	- 0.6	98	10	48	30	34	4.97	+ 1.57	1.00	0	9	9	9	ne.		
Kenton...	Hardin...	1,015	19	70.2	- 1.6	98*	10	44	19	44	4.85	+ 2.45	1.98	0	8	16	8	sw.		
Killbuck...	Holmes...	1,087	19	72.0	+ 1.0	99	10	40	19	42	6.69	+ 3.34	1.60	0	14	13	10	sw.		
Lancaster...	Fairfield...	898	18	73.6	+ 1.9	96	10	49	21	35	5.50	+ 2.62	1.53	0	11	16	6	sw.		
McConnelsville...	Morgan...	710	27	74.0	+ 2.3	98*	10	46	21	39	6.25	+ 3.02	1.80	0	13	9	12	ne.		
Marietta...	Washington...	627	91	76.4	+ 4.4	103	10	51	21	41	5.97	+ 2.21	1.77	0	12	8	10	sw.		
Marion...	Marion...	980	33	73.4	+ 1.5	101	10	45	20	43	4.12	+ 1.17	1.13	0	9	9	9	nw.		
Millfordton...	Knox...	1,200	19	72.0	+ 1.5	99	10	45	20	41	4.91	+ 2.07	2.41	0	9	16	9	sw.		
Milligan...	Perry...	875	18	73.0	+ 1.1	100	10	42	21	46	5.78	+ 2.98	2.02	0	11	8	13	sw.		
Millport...	Columbiana...	1,145	18	70.5	+ 1.3	95	10	41	20	38	6.83	+ 3.59	2.25	0	15	4	19	sw.		
Nellie...	Coshocton...	850	11	71.8	+ 0.2	97	10	40	20	45	7.96	+ 3.81	1.60	0	12	7	20	w.		
New Alexandria...	Jefferson...	1,050	20	73.4	+ 2.3	100	13	44	19	37	6.50	+ 2.93	2.10	0	9	18	5	sw.		
New Berlin...	Stark...	1,100	18	70.4	- 0.6	96	10	43	20	39	5.53	+ 2.08	1.40	0	11	17	7	n.		
New Waterford...	Columbiana...	1,053	16	70.9	+ 1.5	97	10	40	20	40	5.77	+ 2.08	2.17	0	7	9	15	sw.		
Ohio State University...	Franklin...	757	28	73.2	+ 2.1	99	10	48	20	38	4.63	+ 1.70	1.53	0	12	7	19	5		
Pataskala...	Licking...	1,015	16	72.8	+ 0.9	98	10	40	20	38	4.72	+ 1.44	1.23	0	13	5	21	ne.		
Peebles...	Adams...	645	1	72.4	-	103	10	40	20	58	6.09	-	1.83	0	11	8	18	e.		
Philo...	Muskingum...	1,018	16	73.0	- 0.1	97	10	48	20	37	5.34	+ 2.48	1.83	0	12	11	12	sw.		
Piqua...	Plattsmouth...	847	1								6.39	-	1.80	0	11	12	6	se.		
Portsmouth...	Clark...	1,130	18	72.2	0.0	98	10	45	29	33	6.57	+ 4.09	1.24	0	10	9	13	sw.		
Prospect...	Scioto...	527	80	76.0	+ 1.7	97	10	50	21	37	5.86	+ 2.40	2.40	0	15	10	3	sw.		
Marion...	Prospect...	909	1															Neil J. Gast.		
Rittman...	Wayne...	990	19	70.6	+ 1.4	96	5†	45	20	37	7.25	+ 4.18	1.85	0	11	19	5	w.		
Shenandoah...	Richland...	1,100	19	69.8	- 0.1	92	5†	40	20	36	6.73	+ 3.61	2.11	0	9	4	21	sw.		
Sidney...	Shelby...	985	28	73.0	+ 0.5	100	10	50	20	37	9.24	+ 6.41	3.00	0	12	14	3	sw.		
Somerset...	Perry...	1,080	12	75.0	+ 1.5	100	10	55†	30	33	7.02	+ 3.85	1.50	0	11	16	9	sw.		
Springfield...	Clark...	980	17								5.47	+ 3.10	1.40	0	12	5	21	sw.		
Syracuse...	Noble...	1,187	5	73.2	-	96	5†	44	20	41	7.21	-	2.35	0	11	10	15	sw.		
Thurman...	Meigs...	583	1	76.1 <sup>b</sup>	104 <sup>b</sup>	10	49 <sup>b</sup>	21	45	5.29	-	1.55	0	9 <sup>b</sup>	7 <sup>b</sup>	6 <sup>b</sup>	sw.			
Urbana...	Gallia...	696	18	76.9	+ 2.0	102	11	50	21	40	3.53	+ 0.66	1.05	0	6	7	15	sw.		
Champaign...	Noble...	1,031	43	72.2	+ 0.9	100	10	48	20	40	4.99	+ 1.71	0.90	0	11	16	4	w.		
Trumbull...	Wythe...	900	22	71.4	+ 1.6	98	10	40	20	45	5.39	+ 2.13	1.75	0	12	11	9	sw.		
Waverly...	Pike...	590	28	74.4	+ 0.7	98	10	46	21	40	5.48	+ 2.09	1.74	0	11	10	2	sw.		
Waynesville...	Warren...	700	26	72.7	- 0.3	95	10	51	30	33	3.76	-	0.07	1.60	0	9	14	9	sw.	
Wooster...	Wayne...	1,030	32	70.6	+ 1.7	97	10	41	21	41	5.19	+ 2.17	1.39	0	12	11	8	nw.		
Youngstown...	Mahoning...	846	18								7.79	+ 4.67	3.10	0	15	18	0	13	w.	
Zanesville...	Muskingum...	700	24								4.13	+ 1.25	0.94	0	13	12	2	sw.		
<b>Virginia.</b>																				
Big Stone Gap...	Wise...	1,540	20	73.0	+ 0.9	92	10	51	21	31	2.55	- 2.30	.55	0	8	11	15	5	w.	
Blacksburg...	Montgomery...	2,170	20	72.0	+ 2.1	90	11†	49	22	35	5.34	+ 1.40	1.21	0	16	9	14	8	sw.	
Burkes Garden...	Tazewell...	3,250	16	67.0	+ 0.7	88	11†	40	20	36	3.69	- 0.64	.85	0	8	11	4	16	sw.	
Elk Knob...	Lee...	3,243	8	74.4	-	92	10	58	20	28	3.76	-	.95	0	14	11	8	22	sw.	
Jvanhoe**...	Wythe...	2,028	7	70.0	-	88	11	54	20	24	7.00	-	2.62	0	18	9	20	2	sw.	
Labanon...	Russell...	2,131	1	72.4	-	94	11	48	20	37	2.52	-	.82	0	10	13	9	9	sw.	
Marion...	Smyth...	2,224	16	72.1	+ 1.2	94	12†	48	20	36	4.47	-	1.10	1.22	0	17	15	11	5	se.
Mendoza...	Washington...	1,350	2	66.4 <sup>a</sup>	-	86	11†	48	20	29 <sup>a</sup>	2.39	-	.80	0	9				sw.	
Mountain Lake...	Giles...	4,348	1								2.39	-	2.50	0	9				sw.	
Radford...	Montgomery...	1,773	2								5.32	-	1.10	0	10				sw.	
Speers Ferry...	Scott...	1,221	15								1.64	- 3.29	.60	0	8				Arthur Roberts.	
Wytheville...	Wythe...	2,293	18	71.8	+ 1.3	92	11	50	20	31	6.98	+ 2.44	1.92	0	17	15	14	2	sw.	
<b>North Carolina.</b>																				
Altapass...	Mitchell...	2,620																W. J. Woodward.		
Andrews...	Cherokee...	1,800	1	74.6	-	96	8	51												









TABLE 2.—*Daily precipitation for August, 1911, District No. 3—Continued.*

Stations.	Watershed.	Day of month.																														Total.				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
<i>Alabama.</i>																																				
Bridgeport	Tennessee.	.18	.56	.04	.06	..	..	.60	.04	..	..	.45	.08	..	.13	.02	.15	..	..	..	..	..	..	..	..	..	..	..	..	..	.36	.03	4.30			
Decatur	do	.13	1.19	.29	..	1.32	.50	.05	.01	..	..	.11	.03	.53	.10	.01	.34	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.91		
Florence	do	1.10	.50	..	.06	1.65	..	..	..	..	..	.10	..	.60	.04	.12	.40	.70	..	..	..	..	..	..	..	..	..	..	..	..	..	6.02				
Guntersville	do	.12	.62	.60	..	.08	..	.26	.18	T	..	.94	.03	.05	.45	.10	.25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.90			
Madison	do	.86	.94	..	..	.75	..	.46	.74	..	.56	.10	.43	..	.50	.15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.48			
Riverton	do	.73	.40	.80	.01	.04	.30	.08	.05	.05	..	.06	.04	.18	.02	..	.03	.18	.13	..	..	..	..	..	..	..	..	..	..	..	..	3.72				
Scottsboro	do	.06	.42	.11	..	.06	..	.19	..	..	.30	.75	.42	..	.31	.05	..	.05	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.72			
Tuscumbia	do	.80	.40	.33	.43	..	1.78	.06	.25	.04	..	.11	..	.43	..	.44	.35	2.05	.40	..	..	..	..	..	..	..	..	..	..	..	..	8.13				
<i>Tennessee.</i>																																				
Ashwood	Tennessee.	.40	1.40	.10	..	.50	T	.35	..	..	T	T	..	.15	..	1.90	..	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.85		
Benton	do	.13	.46	.06	..	.24	..	.03	.13	..	.18	T	.18	..	.08	.42	T	.04	..	..	T	..	.57	.34	..	..	..	..	..	..	..	..	..	2.45		
Bird's Bridge	do	..	..	..	..	..	..	..	..	..	..	.10	..	.05	.73	.03	.40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.54			
Bluff City	do	..	..	..	..	..	..	..	..	..	..	.15	..	.44	..	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.52		
Byrdstown	Cumberland	1.72	..	..	..	..	..	..	..	..	..	12	..	.65	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.52	
Carthage	do	.28	.45	1.15	T	..	..	.26	..	..	..	.05	.15	.21	..	.38	T	.18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.58		
Cedar Hill	do	1.00	1.00	..	T	.08	.24	.48	T	..	..	.04	.02	..	.03	.04	..	.05	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.83		
Celina	do	.26	.50	.68	..	..	..	..	..	..	..	.29	..	.17	.05	..	.83	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.61		
Center Point	Tennessee.	..	..	..	..	..	..	.10	..	.31	.30	..	..	..	T	.30	..	..	1.40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Charleston	do	.28	.26	T	.04	..	..	.02	.16	..	..	.15	.11	..	..	..	.06	..	.50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.45		
Chattanooga	do	1.21	.03	.05	..	..	..	.18	..	.54	..	..	.31	.06	.01	..	..	..	.06	.10	..	..	..	..	..	..	..	..	..	..	..	..	..	3.02		
Clarksville	Cumberland	1.80	.27	..	..	.26	..	.72	.63	..	..	.02	.40	.01	.24	..	.30	..	..	.01	..	..	..	..	..	..	..	..	..	..	..	..	..	6.78		
Clinton	Tennessee.	.38	1.18	.26	..	..	..	..	..	..	..	.21	.24	..	..	..	.14	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.65	
Dandridge	do	..	..	..	..	..	..	.60	..	..	..	.30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Decatur	do	.61	.02	.04	..	..	.12	..	.70	..	..	.31	.01	..	.01	.33	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.10		
Dickson	Cumberland	1.09	.27	..	..	.33	.43	..	..	..	..	.09	..	.73	..	..	.38	..	..	.06	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.66	
Dover	do	.72	1.35	T	.14	T	.54	.42	..	..	T	T	T	..	..	.58	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.37	
Dunlap	Tennessee.	1.05	..	..	..	..	..	..	..	..	..	.05	.11	.33	.13	.06	.01	.30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.79	
Elizabethton	do	.28	T	.14	..	.65	..	..	..	..	..	.44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.65	
Erasmus	Cumberland	.23	1.16	T	..	..	..	..	..	..	T	.02	T	.13	..	.24	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.80	
Franklin	do	1.13	.35	..	..	.15	.91	..	..	..	T	.07	.10	.03	..	.06	.41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.43		
Hall's Hill	do	.20	1.40	..	..	.12	.26	..	..	..	..	.48	.40	..	.27	..	.23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7.01		
Harriman	Tennessee.	T	.50	.19	..	..	.49	.04	..	..	..	.24	T	T	T	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.36	
Hohenwald	do	.28	.40	..	..	.31	.41	.65	..	.20	..	.40	..	.65	..	.99	..	.29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7.14		
Iron City	do	1.15	.13	..	..	.17	.15	.18	..	.01	..	.09	.66	.08	..	.22	1.11	.12	.65	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.04		
Jefferson City	do	.04	.74	.45	..	..	..	..	..	..	..	1.14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.98		
Johnson City	do	..	..	..	..	.07	..	..	.31	.02	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1.60	
Johnsonville	do	1.34	.30	..	..	1.05	.63	.06	.21	..	T	.04	..	.16	..	.48	..	.20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.95		
Knoxville	do	10	.36	1.03	.05	..	..	.06	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2.43	
Lebanon	Cumberland	.02	.37	1.01	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.84	
Lewisburg	Tennessee.	.06	32	1.65	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.60	
Nashville	Cumberland	1.05	1.26	..	..	.50	T	.82	T	..	T	.10	..	.07	..	.28	..	.03	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.17	
Newport	Tennessee.	.21	20	.22	0.5	T	..	..	..	..	..	1.69	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.62	
Palmetto	Cumberland	.80	1.10	T	..	.05	T	.125	..	..	..	.17	.35	..	..	.50	..	.15	..	..	..</															

TABLE 2.—*Daily precipitation for August, 1911, District No. 3—Continued.*

- Precipitation included in that of the next measurement.

<sup>t</sup> Separate dates of falls not recorded.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for August, 1911. District No. 3, Ohio Valley.

Date.	Pennsylvania.				West Virginia.										Ohio.													
	Greenville.		Pittsburgh.		Charleston.		Elkhorn.		Elkins.		Glenville.		Huntington.		Morgantown.		Parkersburg.		Wheeling.		Canton.		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	88	64	91	72	92	67	85	61	90	58	94	63	91	67	92	66	90	69	95	66	90	62	82	70	85	69	91	63
2....	91	62	88	66	90	70	85	60	84	62	93	66	87	71	88	68	86	69	90	65	86	68	80	67	81	69	77	68
3....	86	64	88	69	87	70	82	61	87	61	89	68	85	70	87	67	86	69	97	69	84	67	86	66	80	67	82	66
4....	88	63	90	71	89	68	85	60	85	63	96	65	89	68	87	68	92	68	95	68	90	61	86	59	89	65	86	67
5....	86	64	87	69	92	67	87	60	86	60	93	65	90	66	86	66	92	68	92	65	91	65	89	68	91	68	89	67
6....	89	62	89	70	94	67	87	60	88	60	96	65	93	62	87	66	93	68	97	67	92	65	91	69	93	69	92	68
7....	93	60	92	70	93	69	85	63	92	61	97	65	92	68	91	67	94	69	99	66	94	65	92	71	91	71	88	71
8....	92	64	91	73	95	69	90	63	93	66	97	67	93	70	93	64	94	72	96	68	93	69	91	72	91	70	91	70
9....	87	56	86	67	95	68	90	61	88	61	96	64	92	67	92	67	91	70	93	64	89	61	91	69	91	64	92	63
0....	95	57	97	66	97	63	92	58	95	54	101	56	96	62	93	58	98	63	97	60	97	60	96	69	98	67	98	68
11....	84	62	91	70	100	68	94	65	97	59	103	61	97	66	95	73	96	72	95	62	87	66	94	72	91	68	93	69
12....	77	57	82	64	100	62	93	62	88	63	96	67	93	71	90	63	91	70	94	65	80	60	90	70	86	63	90	66
13....	87	53	85	68	91	69	89	64	86	65	93	68	88	70	84	67	90	72	85	67	86	64	86	72	84	69	87	70
14....	84	63	86	65	89	71	83	62	85	63	94	65	85	70	83	70	90	71	91	62	87	65	88	73	88	68	88	70
15....	80	63	78	69	89	71	80	65	76	64	82	69	83	70	79	63	79	71	80	69	84	66	86	72	84	71	85	71
16....	87	58	87	66	90	70	85	65	86	60	84	64	86	68	86	63	90	63	94	60	90	62	91	67	89	66	90	64
17....	85	63	87	68	94	65	90	56	90	59	97	60	92	63	88	69	94	69	96	63	87	69	94	68	93	66	93	69
18....	78	51	80	64	94	69	89	63	81	55	91	66	87	63	84	64	86	68	89	66	81	61	88	69	83	65	84	64
19....	74	45	73	57	89	60	83	55	75	49	87	51	82	60	74	53	77	58	82	55	75	51	79	60	77	58	77	57
20....	76	43	75	51	83	57	80	51	77	48	83	49	78	57	74	49	76	56	85	48	76	45	78	60	77	55	78	54
21....	84	51	82	56	86	53	79	48	82	47	90	46	83	53	83	49	86	52	87	49	83	45	84	55	84	54	86	56
22....	88	51	86	66	88	60	82	54	86	50	94	54	88	58	87	52	90	65	92	52	89	55	88	61	87	63	86	60
23....	78	59	78	65	90	63	86	55	86	55	95	58	85	62	82	52	87	65	90	57	80	61	88	65	80	65	82	67
24....	63	57	69	62	90	67	86	57	84	60	89	62	83	69	83	63	82	66	74	60	67	57	87	67	72	61	75	62
25....	71	57	70	64	85	69	83	62	79	65	83	62	82	69	77	64	74	68	74	60	70	53	72	66	70	64	70	61
Mns..	82.0	57.5	82.4	65.1	89.7	65.9	84.7	60.1	83.9	59.3	90.5	62.2	86.3	65.2	84.4	63.0e	86.1	66.2	87.5	61.9	83.1	60.5	85.3	66.7	83.4	64.4	83.7	64.0

Date.	Ohio.				Virginia.				Asheville, N. C.				Decatur, Ala.				Tennessee.								Beatty- ville, Ky. §§			
	Marion.		Waverly.		Big Stone Gap.		Wythe- ville.		Chatta- nooga.		Johnson City. §§		Knox- ville.		Nash- ville.		Palmetto.		Sparta.		Waynes- boro.							
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1....	89	61	90	63	82	64	83	62	77	64	84	69	82	68	89	66	85	69	80	68	77	67	80	68	83	67	92	60
2....	84	66	85	66	80	66	83	64	77	62	80	69	82	67	83	67	87	73	66	77	68	73	66	81	69	82	62	86
3....	79	67	88	68	80	67	85	63	75	66	87	65	82	70	89	69	82	85	65	81	86	64	86	64	82	66	86	66
4....	91	59	90	63	81	65	85	62	81	63	90	68	88	68	94	64	86	68	88	68	87	67	89	64	93	61	93	61
5....	93	62	90	62	85	62	83	60	80	68	90	68	91	68	87	63	89	67	88	68	89	67	89	67	97	63	93	61
6....	96	65	92	66	86	64	79	61	82	61	86	69	89	68	95	65	90	65	90	68	85	66	86	66	80	68	99	62
7....	93	66	93	66	85	63	85	64	85	62	91	67	89	68	95	61	91	69	90	68	88	68	87	66	95	64	94	64
8....	94	70	93	67	87	65	87	64	86	64	92	67	92	65	97	64	91	70	93	67	87	68	93	63	100	61	99	61
9....	97	59	92	61	87	65	90	64	87	63	92	68	91	67	97	63	93	69	92	65	92	65	99	61	99	61	99	61
10....	101	67	98	58	92	61	88	59	86	62	94	72	92	73	101	63	94	69	95	72	94	70	94	66	93	68	100	54
11....	100	73	96	62	92	61	88	64	91	71	88	71	101	64	92	72	70	92	73	90	79	92	67	88	68	104	56	98
12....	85	60	92	65	90	70	89	64	85	64	83	72	95	67	87	68	70	87	68	90	67	83	66	99	64	93	63	98
13....	88	67	89	69	86	66	84	63	83	63	87	70	87	68	93	62	89	68	87	71	87	70	91	67	80	68	95	66
14....	92	66	87	68	81	67	84	67	85	64	89	70	85	68	95	63	87	70	84	70	84	68	87	68	92	65	95	66
15....	87	70	83	68	78	67	78	66	85	65	88	70	87	69	84													

TABLE 3.—Maximum and minimum temperatures for August, 1911. District No. 3—Continued.

Date.	Kentucky.												Indiana.												Philo, Ill.			
	Bowling Green. \$§		Earlington. \$§		Greensburg. \$§		Lexington.		Louisville.		Maysville. \$§		Williamsburg. \$§		Butler-ville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	85	66	87	70	83	66	82	68	83	70	88	64	86	65	86	63	84	69	81	69	81	67	83	69	82	70	85	68
2....	76	67	78	65	77	66	78	68	79	71	87	68	85	65	81	66	77	68	81	67	79	63	85	65	80	67	81	63
3....	86	62	92	60	85	62	85	67	88	68	91	66	83	67	87	62	86	64	85	66	85	62	81	63	85	63	88	56
4....	92	67	95	65	89	63	88	67	91	70	93	62	86	64	92	66	89	69	87	69	86	64	84	67	89	68	89	65
5....	93	67	98	65	91	63	91	69	93	71	96	61	93	67	91	63	89	72	86	73	89	64	85	71	89	72	91	67
6....	94	66	90	71	91	64	90	69	92	72	99	64	92	66	92	67	96	72	91	69	94	63	89	68	92	70	93	66
7....	98	66	86	68	88	65	90	71	88	71	96	66	90	67	90	66	80	68	89	70	89	67	86	69	86	69	88	66
8....	97	65	98	68	94	63	92	68	97	73	98	68	98	63	97	70	93	72	91	72	88	70	90	72	94	72	91	68
9....	97	66	101	66	95	66	93	71	96	72	100	64	95	69	96	62	96	72	94	68	96	55	93	65	95	63	95	61
10....	100	66	105	67	101	59	99	71	102	71	105	59	98	63	101	64	99	72	99	69	98	61	98	66	102	65	97	66
11....	99	69	105	66	98	61	98	72	102	74	104	62	97	61	100	67	98	73	93	75	89	66	93	70	99	69	94	67
12....	97	69	101	70	97	65	91	67	95	74	98	68	95	67	92	68	95	77	89	69	81	88	69	93	70	88	68	
13....	97	69	90	70	86	66	88	67	92	71	95	67	87	67	90	67	87	73	91	72	90	66	92	69	93	70	90	66
14....	90	69	92	72	87	61	87	70	86	75	95	68	87	65	91	71	88	75	86	72	91	66	87	71	90	74	91	68
15....	89	65	94	71	87	66	85	69	92	73	91	69	86	68	91	70	91	73	89	72	82	66	91	70	94	73	92	65
16....	97	68	100	68	83	68	90	69	96	70	98	65	92	68	95	60	95	63	91	67	92	56	95	63	96	61	97	51
17....	94	68	99	68	96	63	92	67	98	72	101	60	95	60	96	67	95	68	92	68	93	63	98	65	94	65	95	65
18....	95	66	96	68	92	64	88	68	93	71	93	65	92	67	91	62	91	72	85	63	83	61	88	65	91	64	89	64
19....	96	62	86	61	85	58	80	61	84	64	87	55	87	62	86	51	82	66	78	57	76	45	80	55	85	55	83	55
20....	94	61	90	61	82	59	78	58	83	59	85	52	84	56	82	48	82	64	80	55	79	44	81	51	85	54	82	51
21....	90	53	94	52	89	48	85	58	89	60	91	49	90	50	88	50	85	62	84	59	85	47	84	59	88	52	83	50
22....	90	57	88	52	92	50	88	61	88	62	95	52	88	56	90	56	80	68	82	61	78	50	83	56	82	54	84	58
23....	94	62	96	52	92	58	86	62	92	68	94	58	92	60	89	66	89	70	70	61	71	59	75	59	78	65	74	58
24....	91	64	92	63	90	60	84	67	88	69	89	61	90	60	87	64	82	66	68	61	63	57	67	60	75	64	64	56
25....	78	68	75	68	79	64	74	68	75	68	74	65	85	62	72	66	70	63	69	60	72	56	70	58	70	61	74	58
26....	80	64	82	60	81	66	79	67	78	68	83	66	82	68	78	64	76	64	73	59	76	51	73	57	78	60	78	54
27....	86	66	86	62	81	64	82	70	87	70	92	67	89	67	89	66	85	70	86	66	85	61	84	62	87	64	87	59
28....	83	68	82	68	89	65	83	67	76	68	86	70	95	65	82	65	80	70	76	56	80	62	77	64	81	70	74	58
29....	68	62	80	59	64	61	67	56	75	61	65	53	74	70	75	54	75	57	70	52	69	47	70	51	75	51	71	49
30....	78	60	82	56	69	55	69	57	76	59	73	58	70	60	77	51	77	54	76	50	74	47	75	50	80	50	75	48
31....	86	65	87	55	78	58	76	62	81	67	79	59	78	62	85	63	84	62	82	56	80	47	82	56	85	55	84	49
Mns..	90.0	64.9	91.1	64.5	86.8	61.8	85.2	66.4	88.2	68.8	91.0	62.2	88.4	63.9	88.4	62.7	86.0	68.2	83.8	64.6	82.9	58.6	83.9	63.2	87.0	64.0	85.4	60.1

•, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.